Chapter Eight

Wellhead Protection for New Wells

8.0 WELLHEAD PROTECTION FOR NEW WELLS

Wellhead protection not only applies to existing wells but also applies to potential and new wells.

8.1 AGENCY RESPONSIBILITIES

The process for drilling a new water well involves several agencies. These agencies and responsibilities are listed in Table 8.1.

Table 8.1 State Agency Responsibilities in Drilling a New Well

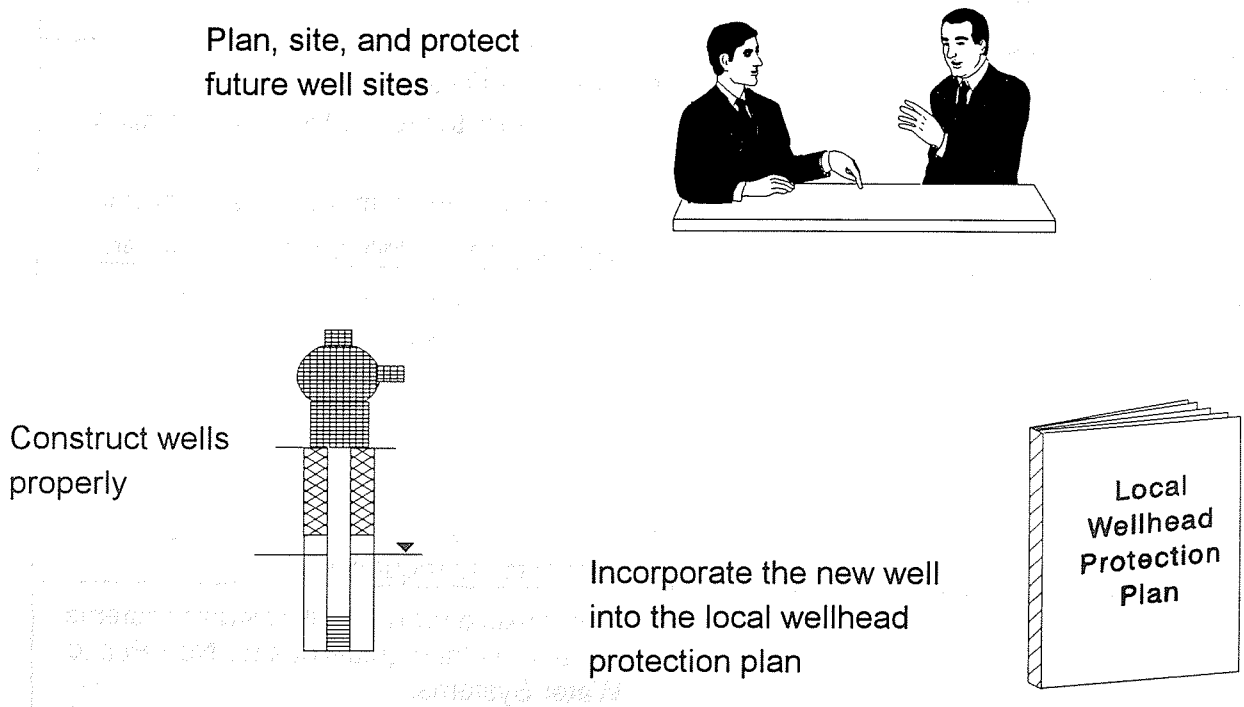
Agency	Role
Idaho Department of Water Resources	♦ Issues drilling permits. ♦ Administers the Idaho Well Construction Rules. ♦ Responsible for administering water rights. ♦ Can petition for drilling areas of concern.
Idaho Division of Environmental Quality	♦ Reviews and approves plans for public water supplies with 15 or more connections. (Idaho Code defines public water *supplies* as *systems* which serve 15 or more connections.) ♦ Approves well lot locations. ♦ Provides advice on wellhead protection concepts, as requested.
District Health Departments	♦ Responsible for non-public water systems under the Idaho guidelines for Non-Public Water Systems. ♦ Responsible for release of sanitary restrictions for water supplies, sewage disposal, and solid waste. The conditions of approval are based on current rules and regulations for water systems and sewage disposal. ♦ Issues permits for new and replacement septic systems under the authority of the Rules for Individual and Subsurface Sewage Disposal.

8.2 MAJOR WELLHEAD PROTECTION ISSUES FOR NEW WELLS

When addressing wellhead protection for new wells, there should be three main topics that are considered (Figure 8.1):

- Planning, siting, and protecting future sites;
- Proper well construction; and
- Incorporating the new well into the existing local wellhead protection plan.

Figure 8.1. Wellhead Protection Topics for New Wells



8.2.1 Plan, Site and Protect Future Drilling Sites

Local governments and water purveyors should cooperate in the effort to plan, site, and protect future drilling sites. Future well sites should be located in areas with as few potential sources of contamination as possible and the site should be reserved and protected for this specific use. Plans for drilling future wells should be incorporated into the

comprehensive land use plan and the community should use one of the basic methods (Basic I or II) to define the wellhead protection areas. The contamination potential in the protection area should be evaluated before a final well site is chosen.

The Rules Governing Public Drinking Water Systems requires that new community water systems constructed after July 1, 1985, have a minimum of two sources if they serve more than 25 homes. The Wellhead Protection Work Group recommends that these two sources be located as far apart as possible.

8.2.1.1 Rationale/Discussion

Cooperation between local governments and water purveyors in planning future water supply wells is essential for two main reasons. One, from an implementation standpoint, the water purveyor will only be able to locate future water supply wells, especially if the purveyor is privately owned, but the local government has the authority to enact protective measures for wellhead protection areas. Secondly, functions necessary to operate a city or county need to be planned cooperatively with the appropriate entities.

It is recommended to use the basic delineation approach until a well is developed and tested as very little specific information will be known. Local governments or water purveyors are not expected to use resources to define a refined delineation when the quality and quantity of the potential well is yet unknown, unless there is extensive nearby hydrogeologic data available.

The drinking water regulations state that a community water system constructed after July 1, 1985, must have at least two sources, but it does not specify where the sources should be located. To reduce the possibility of losing both the primary and backup source to the same contamination event, the Wellhead Protection Work Group recommends that these wells be located as far apart as possible.

8.3 WELL CONSTRUCTION

At a minimum, wells must be constructed in accordance with Idaho Department of Water Resources Rules. Water purveyors should also ensure that wells are constructed such that the surface seal prevents the movement of surface contaminants immediately around the wellhead from entering the well. In cases where water quality is questionable, water purveyors may want to prevent the interconnection of aquifers.

8.3.1 Rationale/Discussion

Many contamination events in drinking water wells are believed to be due to the introduction of contaminants from the surface via the annular space or introduced from a shallow aquifer to a deeper aquifer because of inappropriate well construction. A wellhead protection plan for new wells needs to address these concerns to be a comprehensive prevention plan.

8.4 INCORPORATION OF NEW WELLS INTO LOCAL PLANS

The delineation approach for new wells should follow the assessment guide in Chapter 4 (Figure 4.5). The management of wellhead protection areas for new wells should be at least as stringent as management for existing wells. The management of wellhead protection areas for existing wells is discussed in greater detail in Chapter 6.

8.4.1 Rationale/Discussion

Planning a new well, with the concepts of wellhead protection in mind, offers a community an opportunity to provide the best possible protection for that well. The delineation and management of the new wellhead protection area should be at least as stringent as for existing wells. If desired, a community that chooses to use the basic delineation approach for existing wells may use a refined delineation approach for new wells.

Chapter Nine

Public Participation and Education

9.0 PUBLIC PARTICIPATION AND EDUCATION

Public participation was included throughout the development of the Idaho Wellhead Protection Program. This was essential because the major responsibility for implementation rests on the local community. Local community representatives can help build a practical program that can be truly implemented.

Public education has been identified as the cornerstone of the Idaho Wellhead Protection Program. This factor is critical because there can only be support for the program if the public understands basic ground water and drinking water concepts. This understanding will enable communities to realize that wellhead protection is in their best interest. Once the community decides to initiate a wellhead protection plan, the Idaho Wellhead Protection Program will provide guidance on how to prevent drinking water from becoming contaminated.

9.1 PUBLIC PARTICIPATION

The Safe Drinking Water Act Amendments of 1986 states that "to the maximum extent possible, each state shall establish procedures, including but not limited to the establishment of technical and citizens' advisory committees, to encourage the public to participate in developing the protection program for wellhead areas..."

The Idaho Wellhead Protection Plan was developed by the Wellhead Protection Work Group and a subgroup, the Technical Task Force. These two groups are discussed in Program Summary, Purpose, Development, and General Policies in Chapter 2.

9.1.1 Public Participation Procedure

The Safe Drinking Water Act Amendments of 1986 further states that "such procedures shall include notice and opportunity for public hearing on the state program before it is submitted to the administrator."

There are several methods that have been used to solicit public comment on the plan. These methods included:

- use of an advisory committee to develop the plan;
- news releases giving notice that the plan is available for review;

- flyers mailed to water purveyors, city/county officials, and interested citizens, announcing that the plan is available for comment; and
- workshops held in different areas of the State.

9.1.2 Specifics of Public Participation Procedure

The Idaho Wellhead Protection Program was developed by IDEQ and two advisory committees, the Wellhead Protection Work Group and the Technical Task Force. The advisory committees were comprised of representatives of small and large water systems, city/county planning and zoning, well drillers, irrigation users, citizen groups, and state and federal agencies. A list of the participants are given in Appendix C. In addition, all meetings were open and several other water system operators and private citizens attended the meetings. Agendas, meeting minutes, and notification of meeting times and locations were provided. The mailing list developed as people expressed interest following presentations at conferences/workshops or after reading articles in newsletters (DEQ, Idaho Building Contractors Association). Twenty advisory committee meetings were held between June 1991 and March 1994.

In 1992, IDEQ announced that the plan was available for review and was seeking comments. This was accomplished by using the following mechanisms.

- Flyer which was mailed out to all the system operators and the legislators in the State in July 1992. This flyer asked for comments on the plan and generated interest in the workshops.

- News release by the Department of Health and Welfare on August 18, 1992. This news release announced that IDEQ was seeking comments on the plan and was providing 5 public workshops across the State. These workshops were held at the following locations:
  - Boise, August 24, 1992
  - Twin Falls, August 25, 1992
  - Pocatello, August 27, 1992
  - Coeur d'Alene, September 9, 1992
  - Moscow, September 10, 1992.

- Advertisement of workshops and request for comments in five local newspapers. The contractor for the workshops purchased advertisement space in the Moscow-Pullman Daily News, Eastern Idaho Farm and Ranch (Idaho Falls), Times News (Twin Falls),

Idaho State Journal (Pocatello), Coeur d'Alene Press, and the Idaho Statesman (Boise).

- Workshop Brochure. This brochure indicated that the workshops would provide a forum for public comment. At the workshop, the concepts of hydrogeology, contaminant sources, and the policies of the Idaho Wellhead Protection Program were introduced in the morning session. Time for questions and discussion were scheduled after each presentation. In the afternoon session, the participants worked together to "develop" a local wellhead protection program in a fictional community. A workbook covering the workshop topics was given to each participant.

Other full day wellhead protection workshops, with time allotted for questions or comments, also were conducted. These workshops were sponsored by the Idaho Rural Water Association. The topics addressed included basic hydrogeology, ground water contamination, and concepts and policies of the Idaho Wellhead Protection Program. The audience that attended these workshops were mostly water system operators and elected officials. The locations and dates were:

- Boise, January 31, 1994
- Nampa, February 1, 1994
- Pocatello, February 3, 1994
- Sandpoint, February 10, 1994
- Lewiston, August 16, 1994
- Burley, August 18, 1994

In addition, the following presentations on wellhead protection were conducted:

- Community Education Class, Boise, February 6, 1992
- Environmental Health Conference, Boise, March 10, 1992
- AWWA Preconference, Portland, May 6, 1992
- Field Office/District Health Dept., Coeur d'Alene, July 28, 1992
- Field Office/District Health Dept., Lewiston, July 28, 1992
- Field Office/District Health Dept., Boise, July 30, 1992
- Field Office/District Health Dept., Twin Falls, August 5, 1992
- Field Office/District Health Dept., Pocatello, August 6, 1992
- Idaho Planning Association Conference, Nampa, September 30, 1992
- Community Education Class, Boise, November 17, 1992
- Community Education Class, Boise, December 1, 1992
- Idaho Water Users Association Conference, Boise, December 11, 1992
- Environmental Health Conference, Boise, March 9, 1993
- Idaho Groundwater Association Conference, McCall, July 12, 1993
- BSU Water/wastewater class, Meridian, September 8, 1993

- BSU Water/wastewater class, Meridian, September 23, 1993
- Idaho Drinking Water Staff, Boise, April 6, 1994
- BSU water/wastewater class, Meridian, September 14, 1994
- Small Systems Workshop, Twin Falls, November 9, 1994
- Idaho Rural Water Association Conference, Lewiston, March 8, 1995
- Field Office, Lewiston, March 8, 1995
- Environmental Health Conference, Boise, March 16, 1995

9.2 PUBLIC EDUCATION

The educational efforts for the Wellhead Protection Program will be made in accordance with Policy III-A of the Ground Water Quality Plan. In addition, the Wellhead Protection Program will coordinate educational efforts with the State Drinking Water Program.

Because the Wellhead Protection Program involves such a broad scope of issues, topics, and skills, education efforts will be coordinated to ensure that precise information is disseminated and that the efforts are effective. These efforts will involve other entities such as the Department of Health and Welfare public information office, other state agency programs, federal agencies, the public and private school systems, and public entities or citizens groups.

9.2.1 Material Development

Public education and material can be developed by IDEQ as program funds allow. Consultation with the Wellhead Protection Work Group or Technical Task Force members may be requested.

Types of education materials that may be developed or collected include:

- brochures;
- slide shows;
- workbooks/workshops;
- videos; and
- reference materials in IDEQ regional offices or Central Office.

Chapter Ten

Program Implementation

10.0 PROGRAM IMPLEMENTATION

This chapter describes the strategy for implementing the Wellhead Protection Program in Idaho. The discussion will include the general implementation approach, the elements involved with this implementation approach and implementation activities for each of the Idaho Wellhead Protection Program components.

10.1 GENERAL IMPLEMENTATION APPROACH

In Idaho, the Wellhead Protection Program is voluntary for local governments and water suppliers to implement. A voluntary program means that local governments and water suppliers will be encouraged, but are not required to develop a local wellhead protection program. This approach will best meet the needs of Idaho in consideration of several reasons. Some of these reasons include the need for ground water protection education, a wide diversity in system sizes and needs, and consistency with the policy of the Ground Water Quality Plan, 1992. The Ground Water Quality Plan states that voluntary programs should be developed first, and mandatory programs should be developed when voluntary programs are not successful. A complete discussion on the reasons are provided in Chapter 2.

To ensure that a voluntary wellhead protection program is successful, the State of Idaho has developed a strategy for guiding implementation of the program. The five main elements of this strategy include:

- Coordination with other related programs;
- Education and outreach;
- Incentives;
- Technical assistance; and
- Funding assistance.

A summary of the implementation strategy is shown in Table 10.1.

Idaho will focus implementation efforts on wells or springs that regularly serve a population year round. This would include:

- Public community water systems; and
- Non-public water systems.

By targeting these wells or springs, it is expected that the prevention efforts will benefit a majority of Idaho's population.

Table 10.1 Summary of the Implementation Strategy

Element	Description
Coordination with other programs	Purpose is to: ♦ promote wellhead protection concepts; ♦ help facilitate state or federal permitting, enforcement, remediation, etc. activities in recognized wellhead protection areas; and ♦ form partnerships to provide technical assistance to interested communities.
Education and Outreach	IDEQ will: ♦ develop educational material; ♦ conduct workshops; ♦ give presentations; and ♦ work with other agencies and organizations to reach communities, water suppliers, or individuals that use ground water for drinking water.
Incentives	IDEQ will: ♦ develop incentives, with programs such as the Drinking Water Monitoring Waiver Program to encourage communities to develop a local wellhead protection program.
Technical Assistance	IDEQ will: ♦ develop guidance; ♦ compile information references; ♦ provide training for pertinent staff; ♦ coordinate technical assistance efforts with the Idaho Rural Water Association; and ♦ work with other programs and agencies to enhance the technical assistance capacity of the state.
Funding Assistance	IDEQ will: ♦ seek funding opportunities from federal and state sources to assist those communities that choose to enhance the quality of their local wellhead protection program with projects such as hydrogeologic studies, evaluation of best management practices, etc.

10.2 IMPLEMENTATION STRATEGY ELEMENTS

As presented under General Implementation and in Table 10.1, there are five main elements of Idaho's strategy for guiding program implementation. These elements are discussed in the following sections.

10.2.1 Coordination with Other Related Programs

Because the Idaho Wellhead Protection Program is not a stand alone program, IDEQ will establish "connections" with other agencies to more effectively administer the program. These connections may be formal agreements between agencies. For example, a Ground Water Protection Interagency Cooperative Agreement between IDEQ, IDWR and IDA has been developed. Wellhead Protection Program implementation is specifically addressed under the Program Coordination part of the Agreement. Other coordination efforts may be less formal but the intent of the coordination, as it pertains to wellhead protection, would be to:

- Promote wellhead protection concepts;
- Help facilitate state or federal enforcement, permitting, remediation, etc. activities within recognized wellhead protection areas; and
- Form partnerships to provide technical assistance to interested communities.

Coordination efforts will be developed with the many ground water related programs as shown in Figure 10.1. Coordination with the following related programs or activities has already been started:

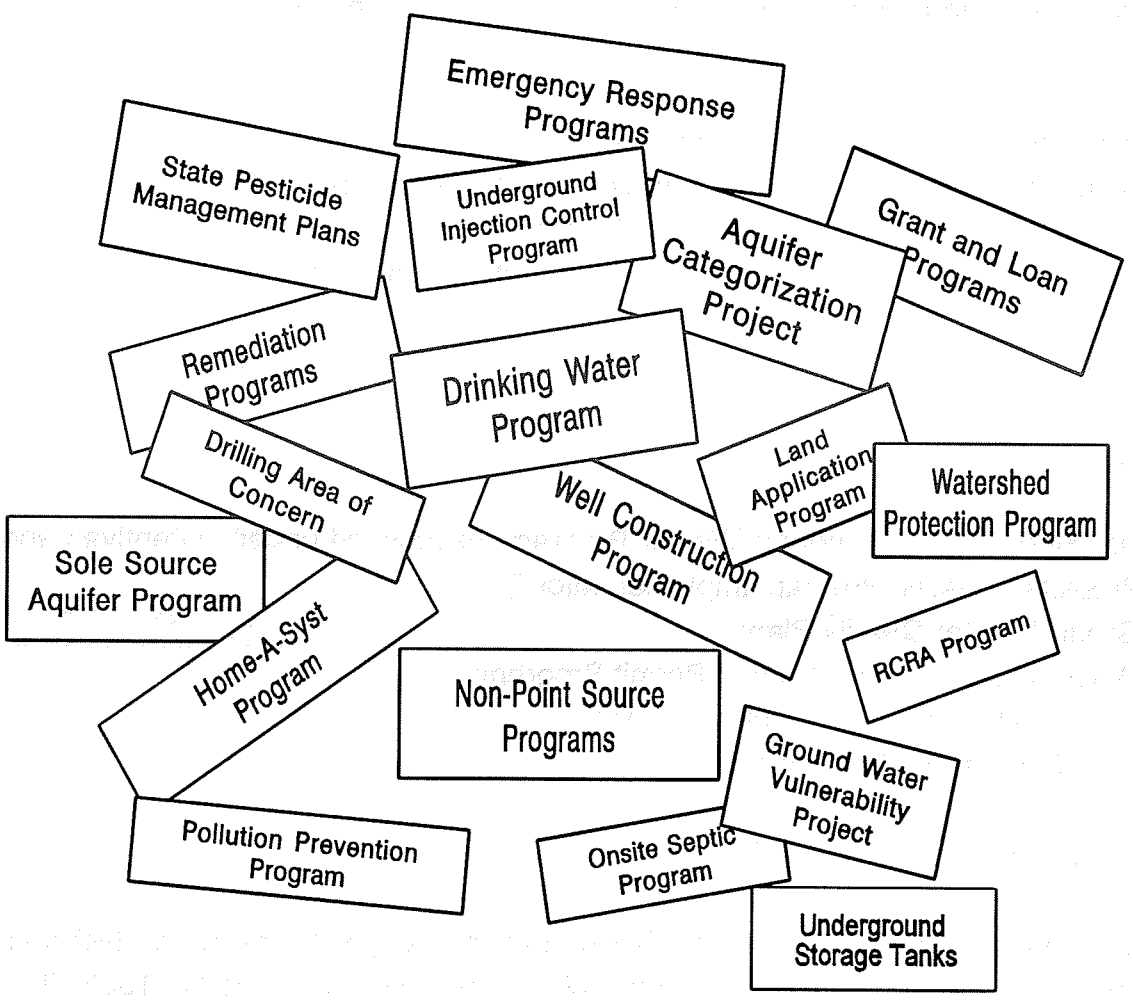
- Drinking Water Monitoring Waiver Program, (discussed under "Incentives and Projects to Assist Program Implementation");
- Ground Water Quality Plan;
- Wastewater Land Application Permit Program;
- Pollution Prevention Program; and the
- Sole Source Aquifer Program.

10.2.1.1 Ground Water Quality Plan

In 1989, the Idaho Legislature enacted the Ground Water Quality Protection Act, which was the authority for the development of the Ground Water Quality Plan adopted in 1992. The Ground Water Quality Plan describes Idaho's overall approach to protecting its ground water. The major component of the Plan is the Ground Water Quality Policies section.

Some of the key policies address ground water protection, prevention of contamination, public education, government interaction, and public participation. Development of a statewide Wellhead Protection Program is identified as an implementation item under Policy II-A: "Prevention of Ground Water Contamination". Wellhead Protection will also support implementation of many of the other policies within the Plan.

Figure 10.1 Programs and Activities to be Coordinated with the Wellhead Protection Program



10.2.1.2 Wastewater Land Application Permit Program

Wellhead protection concepts have been incorporated into guidelines for the Wastewater Land Application Permit Program. These guidelines direct a land application permittee to include wellhead protection concepts and to coordinate and be consistent with any local management strategies, particularly if the facility is located in a wellhead protection area. This process will ensure that wellhead protection concepts have been incorporated into the permit evaluation process and where appropriate, will be incorporated as a permit condition.

10.2.1.3 Pollution Prevention Program

The IDEQ has initiated a Pollution Prevention Program and has formed a focus group to coordinate the prevention objectives and actions in programs within the agency. The focus group has set objective priorities and will assist in the development of educational and technical assistance efforts. The materials and workshops that will be developed by this program will be very useful toward implementation of the source management component of the Wellhead Protection Program.

10.2.1.4 Sole Source Aquifer Program

The Wellhead Protection Program in Idaho has been coordinated with the federal Sole Source Aquifer Program. Pursuant to section 1424(e) of the Safe Drinking Water Act, the EPA can designate an aquifer as a sole source aquifer. A sole source aquifer is an aquifer which supplies at least 50% of the drinking water consumed in the area overlying the aquifer. Also, there are no alternative drinking water source(s) which could physically, legally, and economically supply all those who depend upon the aquifer for drinking water. As a result of this designation, federal financially-assisted projects proposed in the project area will be subject to review by the EPA to ensure that the projects are designed and constructed to protect water quality. Communities over sole source aquifers that seek federal funding to drill new drinking water wells have been encouraged to implement wellhead protection strategies for the new well. The sole source aquifers in Idaho are the:

- Rathdrum Prairie Aquifer;
- Eastern Snake River Plain Aquifer; and
- Lewiston Basin Aquifer.

10.3 EDUCATION AND OUTREACH

Communities and water suppliers will implement wellhead protection only if they understand the benefits and decide that the effort is in their best interest. To promote wellhead protection concepts, IDEQ will coordinate education and outreach efforts with other programs and organizations that are concerned with water quality. IDEQ can develop educational materials, conduct workshops or give presentations to reach those communities, water suppliers, or individuals who are dependent on ground water for their drinking water.

10.4 INCENTIVES AND PROJECTS TO ASSIST PROGRAM IMPLEMENTATION

In addition to education and outreach, incentives will be used to further encourage communities and water suppliers to develop and implement local wellhead protection plans. At this time, the IDEQ is developing, in more detail, an incentive relating drinking water monitoring waivers and wellhead protection. Drinking water monitoring waivers may be related to chemical compounds or may help a water system comply with requirements under the surface water treatment rule if groundwater is found to be under the influence of surface water.

The Wellhead Protection Program has initiated the link with the drinking water monitoring waivers by developing delineation guidelines consistent with the drinking water monitoring waiver time frames (3, 6, and 10-year time of travel boundaries). The 3, 6 and 10-year time of travel boundaries should be used as the waiver process will eventually involve evaluation of potential sources of contamination within the time of travel zones around a wellhead. This evaluation will determine whether the system is eligible for reduced frequency of monitoring for Phase II/V volatile organic compounds and synthetic organic compounds. On the monitoring waiver application form it has been indicated that the process of evaluation may be simplified if a local wellhead protection program is developed. Waiver application forms and additional information can be obtained from any IDEQ regional office. As the waiver and Wellhead Protection Program evolve, efforts will be made to further links wherever possible.

Other incentives or projects that may be developed to assist implementation of local wellhead protection programs include coordination with state grant and loan programs and coordination with other programs or entities on mutually beneficial projects.

10.5 TECHNICAL ASSISTANCE

Most communities will be more likely to implement wellhead protection if they are provided technical assistance. Also, some communities or water suppliers are very interested in developing and implementing a local wellhead protection program, but are not sure how to get started or where to get information. As resources allow, the IDEQ will help meet these needs by:

- Developing written guidance and technical information;
- Compiling information references;
- Providing training for pertinent staff;
- Coordinating efforts with the Idaho Rural Water Association;
- Working with other programs and agencies; and
- Providing hands on assistance to communities.

The Wellhead Protection Work Group and Technical Task Force recommended that guidance be developed to assist local governments in implementing local wellhead protection programs. The purpose and scope of this guidance is to provide reference information, organizational ideas, data collection forms and other useful program implementation tools.

Technical assistance to rural communities has been provided by the Idaho Rural Water Association through a contract with the National Rural Water Association and the EPA. The Idaho Rural Water Association promotes wellhead protection in communities of fewer than 10,000 people. Approximately 94% of the cities in Idaho would be considered rural under this definition. The estimated populations of cities in Idaho (1990 Census) are shown in Table 10.2.

As referenced above, the IDEQ will work with other agencies and programs to provide technical assistance to communities that are implementing wellhead protection. Much of this technical assistance will be related to managing potential sources of contamination within wellhead protection areas.

Table 10.2. Estimated Populations of Cities in Idaho (1990 Census)

Pop. Rank	City	1990 Pop.	Pop. Rank	City	1990 Pop.	Pop. Rank	City	1990 Pop.
1	Boise	125,738	56	Parma	1,597	111	Franklin	478
2	Pocatello	46,080	57	Osburn	1,579	112	Lewisville	471
3	Idaho Falls	43,929	58	Priest River	1,560	113	Smeiterville	464
4	Nampa	28,365	59	Filer	1,511	114	Nez Perce	453
5	Lewiston	28,082	60	Aberdeen	1,406	115	Ponderay	449
6	Twin Falls	27,591	61	New Plymouth	1,313	116	Clark Fork	448
7	Coeur d'Alene	24.563	62	Glenns Ferry	1,304	117	Riggins	443
8	Moscow	18,519	63	Bellevue	1,275	118	Firth	429
9	Caldwell	18,400	64	Sugar City	1,275	119	Lava Hot Springs	420
10	Rexburg	14,302	65	Shoshone	1,249	120	Dubois	420
11	Blackfoot	9,646	66	Wilder	1,232	121	Moyie Springs	415
12	Meridian	9,596	67	Kamiah	1,157	122	Basalt	407
13	Burley	8,702	68	Ashton	1,114	123	Hazelton	394
14	Mountain Home	7,913	69	Challis	1,073	124	Bancroft	393
15	Chubbuck	7,791	70	Iona	1,049	125	Weston	390
16	Post Falls	7,349	71	Arco	1,016	126	Richfield	383
17	Jerome	6,529	72	Wallace	1,010	127	Notus	380
18	Garden City	6,369	73	Grace	973	128	Hauser	380
19	Payette	5,592	74	Sun Valley	938	129	Newdale	377
20	Rupert	5,455	75	Lapwai	932	130	Cambridge	374
21	Sandpoint	5,203	76	Paul	901	131	Fairfield	371
22	Ammon	5,002	77	Ucon	895	132	Dayton	357
23	Emmett	4,601	78	Cascade	877	133	Athol	346
24	Weiser	4,571	79	Hansen	848	134	Hayden Lake	338
25	American Falls	3,757	80	Driggs	846	135	Grandview	330
26	Hayden	3,744	81	Council	831	136	Kootenai	327
27	Preston	3,710	82	Cottonwood	822	137	Kendrick	325
28	Hailey	3,687	83	Mullan	821	138	Idaho City	322
29	Shelley	3,536	84	Plummer	804	139	Eden	314
30	Buhl	3,516	85	Marsing	798	140	Arimo	311
31	Eagle	3,327	86	Spirit Lake	790	141	Albion	305
32	Grangeville	3,226	87	Potlatch	790	142	Dover	294
33	Soda Springs	3,111	88	Inkom	769	143	Victor	292
34	St. Anthony	3,010	89	Pierce	746	144	Parker	288
35	Salmon	2,941	90	Genesee	725	145	Culdesac	280
36	Orofino	2,868	91	McCammon	722	146	Declo	279
37	Gooding	2,820	92	Troy	699	147	Rockland	264
38	Heyburn	2,714	93	Kooskia	692	148	Winchester	262
39	Rigby	2,681	94	Greenleaf	648	149	Bovill	256
40	Montpelier	2,656	95	Horseshoe Bend	642	150	Melba	252
41	Kellogg	2,591	96	Oakley	635	151	Warchner	246
42	Ketchum	2,523	97	Downey	626	152	Clifton	228
43	St. Maries	2,442	98	Menan	601	153	Harrison	226
44	Fruitland	2,400	99	Hagerman	600	154	East Hope	215
45	Kimberly	2,367	100	Ririe	596	155	Stites	204
46	Bonners Ferry	2,193	101	Paris	581	156	Onaway	203
47	McCall	2,005	102	Mackay	574	157	Bloomington	197
48	Rathdrum	2,000	103	Teton	570	158	Moore	190
49	Homedale	1,963	104	Georgetown	558	159	St. Charles	189
50	Wendell	1,963	105	Roberts	557	160	Bliss	185
51	Kuna	1,955	106	Craigmont	542	161	Worley	182
52	Dalton Gardens	1,951	107	New Meadows	534	162	Mud Lake	179
53	Malad	1,946	108	Weippe	532	163	Castleford	179
54	Middleton	1,851	109	Deary	529	164	Malta	171
55	Pinehurst	1,722	110	Juliaetta	488	165	Fernan Lake	170

10.6 FUNDING ASSISTANCE

The Idaho Wellhead Protection Program has been developed so that a local program could be developed without supplemental funding. However, there have and may be situations that require more in depth studies or professional assistance. Some wellhead protection related projects have been funded through federal or state funds, as described in the following paragraphs. Funding is very limited, but opportunities will be sought whenever possible.

10.6.1 Federal Funds

Wellhead protection demonstration grants were available to local governments from the Environmental Protection Agency until 1992. Two communities, Boise and Pocatello, applied and were awarded these grants. These projects are discussed under "Management of Potential Sources of Contamination", (Chapter 6). It is unknown at this time whether the funds for these grants will be reinstated.

IDEQ has also assisted in two projects using federal funds that were granted to the state for program development. These projects are listed below.

- A joint project between Newport, Washington and West Bonner Water District in Oldtown, Idaho. The Idaho portion of the project was financed from wellhead protection program carryover funds from federal fiscal year 1990. This project is discussed in greater detail in Chapter 6.

- A depth-to-water project to assist the city of Boise in developing land use ordinances. This project was funded from wellhead protection program carryover funds from federal fiscal year 1990.

Note: Carryover funds are only available on a one time, case-by-case basis.

The Rural Development Administration through the Farmers Home Administration issued a notice in December 1993 clarifying the policy for funding wellhead protection costs through the Water and Waste Disposal Loan and Grant Fund Program. Wellhead protection costs are eligible only if in conjunction and necessary for projects that involve new construction or renovation to an existing system. Wellhead protection efforts eligible for funding include:

- Studies to delineate the protection area;
- Vulnerability assessments;

- Development of enforcement and/or regulatory requirements in wellhead protection areas; and
- Purchase of land rights.

Eligible entities must be from rural areas and towns up to 10,000 people and must:

- Be unable to obtain needed funds from other sources;
- Have the legal capacity to borrow and repay loans to pledge security for loans and to operate and maintain the funded facility or service;
- Be financially sound and able to manage the facility; and
- Have a financially sound basis to pay facility costs and to retire the indebtedness as well as maintain a reserve.

10.6.2 State Funds

There have been some state funded projects which directly benefit the implementation of the Idaho Wellhead Protection Program. One of these is the ground water vulnerability project.

In 1993, the IDEQ contracted with the Idaho Geological Survey to investigate the geology and unsaturated zone in the Jerome, Idaho area. The results from this study were incorporated into a larger project that will assess ground water vulnerability. The ground water vulnerability project will assist the community in the area in the inventory of potential sources of contamination and in understanding the vulnerability of their aquifer on a local rather than regional scale. The funding for this contract was the Snake River Plain Aquifer 1993 appropriation, which is an annual appropriation designated for "implementing ground water quality management strategies on the Snake River Plain Aquifer."

10.7 WELLHEAD PROTECTION PROGRAM COMPONENTS

The 1986 Safe Drinking Water Act Amendments require that each state wellhead protection program address the seven program components presented in Chapter 2 of this plan. These components represent the elements that a local wellhead protection program should address for state certification as discussed under the State Review and Certification Process for Local Plans in Chapter 2. The following is a summary of how the Idaho Wellhead Protection Program will help implement each of the program components.

10.7.1 Roles and Duties

Chapter 3 of this plan defines general roles and responsibilities at the federal, state and local levels. The ways in which these roles and responsibilities specifically relate to implementation of the other components is further developed throughout the remaining chapters. It is anticipated that further guidance will be developed to assist with program implementation efforts. This guidance may include:

- Suggested committee/responsibility flow charts;
- General procedure recommendations;
- Case study examples;
- Further definition of roles and responsibilities, possibly through interagency agreements, memorandum of understandings, or similar documents; and
- Additional IDEQ program policies.

10.7.2 Wellhead Protection Area Delineation

Chapter 4 of this plan provides wellhead protection area delineation guidance based on available hydrogeologic information for Idaho. Various levels of complexity can be utilized in developing the wellhead area delineation for a specific wellhead. Through the use of Basic I Method, any community can delineate a wellhead protection area using the information in this plan in conjunction with well pumping data. With additional site specific hydrogeologic information, a more accurate wellhead area can be defined through the Basic II Method or a Refined Method. IDEQ will assist with the delineation of wellhead protection areas for those communities using the Basic I and Basic II Methods to the extent possible.

IDEQ also intends to provide technical guidance to assist with wellhead area delineation efforts. This guidance will likely include information pertaining to the following:

- Basic hydrogeologic concepts;
- Reference sources;
- Basic I Method;
- Basic II Method;
- Refined Method;
- Refined Exception Method; and
- Special Case (Aquifer Protection).

At this time there is limited information and resources for local governments to develop wellhead protection programs using refined delineations. However, as cities grow and

need to provide larger quantities of drinking water, understanding the aquifer from which this resource's derived will become more important.

IDEQ will promote the refined delineation by:

- Providing information to local governments when grants become available;
- Developing joint projects with universities or colleges and other state agencies to obtain aquifer characterization information; and
- Searching for funding sources that could be used for delineation purposes.

It is envisioned that most of the larger communities in Idaho will use the refined delineation approach. The smaller communities will be informed of the benefits of the refined and the Basic II delineation methods. However, without dedicated technical assistance and funding, progress will be difficult.

Use of the refined delineation may also be encouraged by the Drinking Water Monitoring Waiver Program. The specific policies to define the relationship of the refined delineation and the waiver program is yet to be established.

10.7.3 Inventory of Potential Sources of Contamination

Chapter 5 of this plan provides guidance that a local community can use to assist with inventory efforts. A detailed listing of potential sources of contamination is also provided within this chapter. One of the challenges in accomplishing a complete inventory of potential sources of contamination will be finding the various sources of data to assist with this effort. Once found, the data source may, or may not meet the need and goals of the community. To assist a community in completing this Wellhead Protection Program component, IDEQ will help develop the following tools:

- Reference sources and the available data;
- Inventory form(s);
- Time frames for updates;
- General guidance on prioritizing sources;
- Ideas for inventory information organization; and
- Information on how other communities have performed their inventories.

10.7.4 Management of Potential Sources of Contamination

In addition to the guidance provided within Chapter 6 and other areas of this plan, IDEQ will provide technical input and assistance in the area of contaminant source control where appropriate. Additional guidance and assistance will include the following.

10.7.4.1 Compendium of Ordinances

The EPA has compiled a compendium of ordinances from communities nationwide on wellhead and general ground water protection. This source will provide models for those communities that choose this method of management. Interested parties will need to contact the IDEQ, Central Office.

10.7.4.2 Guidance Development

IDEQ will develop further guidance that will address some or all of the following topics:

- Reference sources;
- Implementation methods;
- Guidance for local coordination; and
- Example management methods, including information pertaining to how different Idaho communities are implementing this important component.

10.7.4.3 Coordination With Other State Agencies

Management of wellhead protection areas will be accomplished more effectively if efforts are coordinated with state agencies that have regulatory authority over the potential sources of contamination found in the area. Therefore, those agencies that regulate potential sources of contamination found in the wellhead protection area will be formally notified and included in the wellhead protection program technical assistance and certification processes as appropriate.

10.7.5 Contingency Plans

Although the wellhead protection program focuses on pollution prevention, there are no guarantees that a contamination event will not occur. Thus, it is important that communities plan contingency actions as described within Chapter 7 of this plan. This, in particular, will be very important if a community chooses to use the Refined Exception Method of

delineation. Further guidance or assistance, in addition to what is available within this plan, may include the following:

- Specific sources of information;
- Suggested contingency plan topics, including topics that may be specific to a region or specific area;
- Agencies, entities, and other programs that should be involved; and
- Example contingency plans.

10.7.6 Wellhead Protection for New Wells

Locating and drilling a new well with wellhead protection concepts in mind will be a very important part of any local wellhead protection program. For public water wells the procedure, i.e. necessary agency permits, approvals, and drilling requirements, will be emphasized. Suggested procedures and information sources also will be compiled for those intending to drill non-public water wells.

In addition to the guidance within Chapter 8 of the Plan, additional guidance may include:

- Reference sources;
- Procedure flow chart - drilling of public water wells; and
- Procedure flow chart - drilling of non-public water wells.

IDEQ will work with agencies, such as IDWR and the health districts, to provide information on wellhead protection for those who intend to drill new drinking water wells.

10.7.7 Public Education and Participation

Public education is a major component of the Idaho Wellhead Protection Program. Education efforts are already underway through coordination with the Drinking Water Program, Pollution Prevention Program, Home-A-Syst Program, and through an education grant from the Environmental Protection Agency. Additional sources of ground water education material will be provided as part of Idaho's efforts to help implement wellhead protection.

10.7.7.1 Drinking Water Program

The Drinking Water Program has provided a Technical Assistance Notebook for all public water system operators. The intent of this notebook is to provide technical guidance so

system operators can understand and meet federal and state requirements. Information will periodically be sent to the operators which then can be filed under one of the eight general categories of the notebook. Topics pertaining to wellhead protection can be sent to system operators through this method of communication.

The Drinking Water Program sends a quarterly bulletin to public water system operators. This bulletin provides updated information that directly affects the day-to-day operations of a public water system, such as new monitoring requirements. Other relevant topics, such as policies linking the Wellhead Protection Program and the Drinking Water Program also may be conveyed to the operators through the bulletin.

10.7.7.2 Pollution Prevention Program

The IDEQ Pollution Prevention Program will continue to hold educational workshops that will assist facilities in reducing the amount of generated wastes. An activity that was well received has been the workshop focusing on fleet maintenance. Future workshops will target pollution prevention activities related to agricultural crop production, auto repair shops, chemicals and chemical production, metal mining, and lumber and wood products.

Besides organizing workshops, the program staff also anticipates developing a list of speakers, both inside and outside of the IDEQ, who could give presentations on specific pollution prevention activities. This list will be helpful for communities who need reference sources for presentations or technical assistance.

The Pollution Prevention Program staff will also:

- Develop materials that can be incorporated into presentations given by any IDEQ staff;
- Develop a library of pollution prevention articles; and
- Organize groups to assist in developing delivery mechanisms for specific business groups.

10.7.7.3 Home-A-Syst Program

This program is based on the Farm-A-Syst program that was originally developed in Wisconsin. The Farm-A-Syst program is a package of work and fact sheets to help farming homeowners protect ground water and ultimately their drinking water from sources of contamination such as livestock waste management, household waste disposal, silage, pesticide or fertilizer storage and handling, fuel storage, and well construction. Other states, such as Idaho and Washington, have revised the program, and call it Home-A-Syst.

In Idaho, the Natural Resources Conservation Service has organized a Planning Committee to modify the work and fact sheets to be consistent with the state rules and policies. The agencies involved in this committee are:

- Natural Resources Conservation Service;
- Idaho Association of Soil Conservation Districts;
- Soil Conservation Districts;
- Department of Water Resources;
- Division of Environmental Quality;
- South Central District Health Department;
- University of Idaho - Cooperative Extension Service;
- Idaho Department of Agriculture;
- Idaho Water Resources Research Institute;
- Soil Conservation Commission; and
- Farmers Home Administration.

The modified sheets were pilot tested in the Cascade Reservoir Region. Once pilot tested, the materials were revised for use statewide.

Promotion of the project and a strategy for statewide implementation began in January 1996 with the hiring of 15 Americorp members. The hiring of the 15 members gives a major start to Home-A-Syst in Idaho.

10.7.7.4 Education Grant

In June 1993 the EPA awarded a grant to a consortium of organizations, of which the Wellhead Protection Program staff was a participant. The purpose of the project was to develop and pilot test a training program that will actively involve community members in conducting source inventories in wellhead protection areas. The project accomplished the following three objectives:

- Developing a draft training manual for community volunteers;
- Pilot testing the draft manual in Moscow, Idaho; and
- Finalizing the training manual.

This manual, entitled "How to Conduct an Inventory in Your Wellhead Protection Area", is available for use by other communities.

10.7.7.5 Additional Education Assistance

Additional education information and guidance will likely include:

- Reference sources for educational material and
- Descriptions and contacts on local water education projects.

A good example of a local water education project is the storm water stenciling project initiated through the Rathdrum Prairie Aquifer Project. Staff from the Coeur d'Alene Regional Office - IDEQ has organized community or school groups to stencil "Do Not Dump, Drains to Stream" or "Do Not Dump; Drains to Aquifer" messages by storm drains. They have developed a guidance manual and provided training so that other communities may adopt a similar program.

Chapter Eleven

Conclusions

11.0 CONCLUSIONS

This Wellhead Protection Plan describes how Idaho intends to administer a voluntary wellhead protection program for the purpose of preventing contamination of ground water that is used as drinking water. The focus of this program is on public water systems, although the plan recognizes the need to provide guidance and education to non-public water systems. By implementing the Wellhead Protection Program, Idaho will be addressing ground water protection requirements identified under the Safe Drinking Water Act and the Idaho Ground Water Quality Plan. Although development of a state wellhead protection program is driven by federal and state programs, the decision to initiate this program for individual drinking water systems rests with the appropriate local entities such as city and county governments and water purveyors.

The wellhead protection area itself represents the surface and subsurface area surrounding a well through which contaminants are likely to move and reach the well. Delineation of the wellhead protection area is based on ground water flow characteristics which depend on subsurface geologic conditions. The wellhead protection area is to consist of three zones generally representing 3 (Zone I), 6 (Zone II) and 10 (Zone III) year time of travel periods for a contaminant within ground water reaching the well. Zone I is further broken down into Zone IA, which is the required sanitary setback where certain contaminant sources are excluded, and Zone IB which encompasses the remainder of Zone I.

Various levels of complexity can be utilized in developing wellhead area delineations based on available information and resources. The Basic I and Basic II Methods for wellhead area delineations are the simplest methods to use, with the Basic I Method requiring little to no additional data beyond the information available within this plan. The Basic II Method is more accurate than the Basic I Method and should be used when some site specific data are available, but the data, technical expertise, and/or funding are not sufficient to use the Refined Method. The Refined Method represents an even more detailed approach utilizing site specific ground water flow information. This approach is expected to obtain a more accurate wellhead area delineation than either basic method, but will generally require additional resources that may not be available to all communities wishing to implement wellhead protection. The Refined Exception Method is a special case approach where the combined zones (IB, II, and III) of the standard Refined Method are so large as to be unmanageable and the community can demonstrate that they can effectively manage the potential sources of contamination in a smaller wellhead protection area.

Local entity partnerships and public involvement are important implementation components of a wellhead protection program. The delineation of a wellhead protection area will further reveal the importance of these roles because the resulting wellhead area may involve a

mixture of government land and private land under county or city jurisdiction. Coordinated efforts among all potentially affected entities will ensure a comprehensive wellhead protection approach.

Other key program implementation elements include the inventory and management of potential sources of contamination within the delineated wellhead protection area. Local governments often have the authority to manage potential sources of contamination within the portion of the wellhead protection area that is within their jurisdiction. In general, there should be an appropriate level of management throughout wellhead protection areas, with progressively more stringent management of land use and waste discharge closer to the wellhead. Management tools and activities can include regulatory approaches such as zoning ordinances, source prohibitions, and permits; or non-regulatory tools such as purchase of development rights or property, water conservation, and public education and information.

A complete wellhead protection plan will include contingency plans to address the locations and provision of alternate drinking water supplies in the event of loss due to contamination or drought. The use of drinking water MCLs, health advisories, and trends which indicate decreasing water quality are recommended to plan contingency implementation actions.

Wellhead protection planning is also an important consideration for locating new wells. Local governments and water purveyors should cooperate in the effort to plan, site, and protect future drilling sites. Future well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

In Idaho, the Wellhead Protection Program is voluntary for local governments and water suppliers to implement. Local governments and water suppliers will be encouraged, but are not required to develop a local wellhead protection program. It is the intent of IDEQ to assist interested communities in their efforts by providing guidance and technical assistance. IDEQ will make presentations, hold workshops, train appropriate staff, pursue program funding assistance, and coordinate implementation efforts with other agencies and with the Idaho Rural Water Association. IDEQ will certify those local wellhead protection plans which are technically appropriate, substantially meet state guidelines, and address all relevant elements of a wellhead protection program.

Interest in wellhead protection has been growing throughout Idaho and there are several local wellhead protection programs being implemented. This shows the desire of the citizens of Idaho to protect their ground water and the quality of their drinking water supplies. Idaho's Wellhead Protection Program will help guide this effort.